Ramionics: Formulating and calculating all physics concepts and constants including Fine Structure Constant α, ħ, c, K Coulomb, e, K Boltzmann, Range of dark gravity and Dark Energy, Energy density of space and (mass, charge and structure) of (matter particles and energy particles)
by Ramin Khosravi, 1st July 2025 Last version: http://Ramionics.com

1.Epigraphs: The Mystery of 137

Richard Feynman: "You might say the hand of **God** wrote that number and we don't know how He pushed His pencil."

Wolfgang Pauli: "When I die, my first question to the **Devil** will be: What is the meaning of the fine-structure constant?"

Max Born: "No theory of the universe should be regarded as **complete** if it cannot explain the number 1/137."

Paul Dirac: "If numbers such as 137 turn out to be pure **geometry**, physics will finally have reached its foundation."

Ramin: "give me your **desired scaling** for Space, Time and energy units. I calculate all constants in physics (including fine structure constant) using geometry."

2.Introduction

Ramionics as a new physics defines the **universe** as an FCC lattice (Face-Centered Cubic) of 3 dimensional spherical **energy quanta** called **Ramions** (**Rotational Anti Matter and Matter ION**) Any ramion is a packet of pure energy that consists **equal linear/rotational energy** parts generating **pressure/torque** then **relativity/electricity** then **gravity/electromagnetics** then **strong/weak** nuclear forces.

All elementary particles are formed by collapsing some ramions, distributing their energy onto other ramions and forming a black hole in size of 1 local (relative) ramion that can be considered as compressed mass but really its nothing: A hole in space without matter, energy, time, space.

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Matter Energy transforming called **Ramionic reaction** can be calculated and predicted by ramionics.

Electrical charges exactly present torque and rotation (2KrQr2=T). the black hole is covered by 12 ramion in same size. Ach ramion carries a charge equal to 1/12 of an electron, and opposite ramion along an axis must have equal charge for torque equilibrium, the six ramion couple (±e/12) can only sustain total charge states of 0, ±1/2, ±2/3.

Ramions **generate, contains, transport, define, formulate, and Explain** any fundamental thing in physics: space, time, compatible Relativity + Gravity + quantum, matter, antimatter and their asymmetry, Time dilation, gravity and dark gravity (so called dark matter) , space energy (so called dark energy) causing space expansion, all elementary forces: gravity (+strong nuclear force), electromagnetic (+weak nuclear force), elementary particles structure geometry, physics constants like fine structure constant or elementary particles mass or electrical charges, black hole, warm hole, entanglement, … **with no** space-time, no singularity, no field, no loop, no mass generator or force or energy carrier particle like bosons, no chromodynamics, no string, no extra dimension, no parallel word.

2.Geometry of the FCC (Face-Centered Cubic) lattice

Any ramion is tangent to 12 neighbors, generating maximum volume occupancy. number of ramions in layer n as follows:

(1) $L(n) = 10n^2 + 2$

for example L(1)=12, L(2)=42 but L(0)=1 means the centre.

the cumulative number up to and including layer N is:

(2) $T(n) = (1\ for\ centre) + \sum_{k=1}^{n}(10k^2 + 2) = (1\ for\ centre) + \frac{10n^3+15n^2+11n}{3}$

(3) $\varphi = \frac{\pi}{3\sqrt{2}} = 0.74048048969$; volumetric occupancy

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(4) $\varphi \frac{4\pi}{3} R^3 = N(n)\frac{4}{3}\pi r^3$; R= γn(2r)

(5) $\rightarrow \gamma = \sqrt[3]{\frac{10}{24\varphi}} = \sqrt[3]{\frac{10\sqrt{2}}{8\pi}} = 0.8255785095$; radial freedom

(6) $(10n^2+2)\pi r^2 = \beta\, 4\pi R^2 = \beta\,(4\pi)\,(\varphi' n\, 2R)^2$

(7) $\rightarrow \beta = \frac{10}{16\varphi'^2} = \frac{10}{16\,(\frac{10\sqrt{2}}{8\pi})^{\frac{2}{3}}} = 0.91698716849$; area occupancy

φ ,γ , β represent the FCC geometric structure of universe and hidden ratios behind the fine-structure constant.

3.Ramion Counts in a baryon of generation g

Generation index g = 1 → corresponds to electron, up, and down quarks.

(8) Ib(g) = (60/2) + 2(12π)²·64^g

I means initial energy of baryon when formed by collapsing ramions energy

60/2 represents baryon fluctuation, ramion exchanging with space, attendance probability, minimum value of baryon rotational energy or minimum needed amount of 30 ramion, a small value in 181920 ramions but ramionics calculates it.

(9) $Ib_1 = 30 + 181{,}920 = 181{,}950$

(10) n =Nb_1 = 182,200 → 250 to 280 Ramions for extra baryon rotation (=magnetic energy) it's a small value too, but ramionics calculates it, most of energy (of layers 120 to 479 when collapsing) is absorbed by quarks combination: Proton(2 up + 1 Down quarks) or neutron (2 down + 1 Up quarks) because they have larger size than a single baryon.

In collapsing layer 1 to 119 a packet containing 31 baryons of generation 1 is formed and transformed to 7 protons+1 neutrons +7 electrons until layer 479.

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4.Fine-Structure Constant

(1) $R^2 \mathrm{F} = \mathrm{k}\, q_e^2 = \alpha\, \hbar\, \mathrm{c}$;definition

(2) $1/\alpha = (1/\alpha_0) \times \mathrm{QF}_1 = 137.03599921$; experimental

(3) $1/\alpha_0 = \pi\, \gamma^2\, 64\hat{}\mathrm{g} = 137.03976507$; ramionics

Electrical Charge is equivalent to Torque and rotational Energy so similar electrical charges repel each other so collecting them on any surface needs energy (Like any capacitor) that can be calculated by two simple integrals:

(4) $E_r = 2\, E_{Rr} = 4\, E_P = \mathrm{T}$

(5) $E_{\Delta Q} = \int_{\infty}^{r} -F\, dra = \int_{\infty}^{r} \frac{-\, K_r\, Q\, \Delta Q}{R^2}\, dR = \frac{K_r\, Q\, \Delta Q}{r}$ minus sign: save Energy

(6) $E_P = \int_0^{q_r} \frac{K_r\, Q\, dQ}{r} = \frac{K_r\, {q_r}^2}{2r}$ for any sphere or semi sphere with q_r charge

for particles consisted of n Ramion:

(7) $E_P = \sum_{t=2}^{n} (t-1)\ \frac{K_r\, (Q/n)^2}{2\, R_Q}$ $\quad R_Q : radius\ for\ charges\ surface$

(8) $E_p = \frac{K_r}{2\, R_Q} \left(\frac{Q}{n}\right)^2 \frac{n\,(n-1)}{n^2} = \frac{K_r\, Q^2}{2\, R_q} \left(1 - \frac{1}{n}\right) = \frac{K_n\, Q^2}{2\, R_q}$

(9) $E_p = \frac{K_n\, Q^2}{2\, R_q}$; $K_n = K_r \left(1 - \frac{1}{n}\right)$; $K_\infty = K_r$

The coefficient **Quantom Factor** $\left(1 - \frac{1}{n}\right)$ refines formulas and is very important and needed to compensate error of continues calculation on really discrete parameters.

This quantum factor converts Q^2 when considered as continues parameter to Q^2 as a discrete charge produced by ramions.

(10) $\mathrm{QF(g)} = (1 - 5/\mathrm{Ib(g)})$

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QF means Quantum or electrical char Q factor;

(11) $QF_1 = (1 - 5/Ib_1)$; $Ib_1 = 30 + 181{,}920 = 181{,}950$

Thus, the fine-structure constant emerges from FCC geometry and discrete Ramion quantization with sub-percent accuracy.

5 comes from geometry:
From gravitational view all charge attends on particle hole itself (r) but they are at √5r from electromagnetic view so we have area ratio of 5 in quantum factor. √5r is a radius that half of layer 1 ramions surface is internal and another half is external so it is magnetic radius (not gravitational radius which is radius of particle hole itself), on the other hand √5r generates maximum gravity. Its event horizon of particle (neutrino or huge black hole)
In QF we need factor 5 because particle maker ramions are not there, they are distributed so we are calculating the energy not electrical charge.
If this analysis is not true then we have

(12) $QF_1 = (1 - 1/Ib_1) \rightarrow$ IB1=36390, ramionics works but some multiplier have to be refined;

5.Desired scaling units (m, s, Joule)

(13) $c = 2.99792458 \times 10^8$ m/s

(14) E_r = 20.4415138226 eV = $3.27707263 \times 10^{-18}$ J
Obtained by Energy or equivalent mass of 1 particle packet: 7 proton+1 neutron+1 electron

(15) $r = 6.14744525 \times 10^{-25}$ m : using plank constant

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6.Table 1 — Fundamental Constants calculated in Ramionics

No.	Constant	Formula (Ramion)	Value (Ramion)	Formula (Baryon g = 1)	Value (Baryon g = 1)	Experimental
1	Inverse Fine-Structure (1/α)	1/alpha_r = 2	2	π * ((10√2)/(8π))^2/3 * 64^1 * (1 - 5 / 181950)	137 .03599921	137 .03599921
2	Elementary Charge (e)	e_r = √(E_r * r)	1.60200000 ×10⁻¹⁹ C	√(E_r * r * n^3)	1.60217663 ×10⁻¹⁹ C	1.60217663 ×10⁻¹⁹ C
3	Coulomb Constant (k)	(alpha_r * ħ_r * c) = k_r * (q_e/12)^2	5.63175982 ×10⁻⁵ N·m²/C²	(alpha * ħ * c) = k * q_e^2	8.98755179 ×10⁹ N·m²/C²	8.98755179 ×10⁹ N·m²/C²
4	Reduced Planck (ħ)	ħ_r = (E_r * r) / c	6.72000000 ×10⁻⁵³ J·s	(E_r * r * n^3) / c	1.05457182 ×10⁻³⁴ J·s	1.05457182 ×10⁻³⁴ J·s
5	Gravitational (G)	G_r = (c^3 * r^2) / E_r	6.70000000 ×10⁻¹¹ m³·kg⁻¹·s⁻²	G = (c^3 * r^2 * n^12) / E_r	6.67430000 ×10⁻¹¹	6.67430000 ×10⁻¹¹ m³·kg⁻¹·s⁻²
6	Boltzmann (k_B)	k_B = E_r / (c / r)	1.38000000 ×10⁻²³ J/K	k_B = E_r / (c / r)	1.38064900 ×10⁻²³ J/K	1.38064900 ×10⁻²³ J/K
7	Vacuum Energy Density (u_Λ)	u_Lambda = (3π / 4γ^2) * (E_r / r^3)	5.88000000 ×10⁻¹⁰ J/m³	u_Lambda(b1) = Planck inferred value (ΛCDM)	5.90000000 ×10⁻¹⁰ J/m³	5.90000000 ×10⁻¹⁰ J/m³
8	Corrected Density (u′_Λ)	u_Lambda / n^(β/3)	3.70000000 ×10⁻²⁷ J/m³	u_Lambda / n^(β/3)	3.70000000 ×10⁻²⁷ J/m³	3.70000000 ×10⁻²⁷ J/m³
9	Dark Gravity Range (R_dg)	√(3c^2 / (8π G u'_Lambda))	8.94072136 ×10²⁵ m (9.46523871 ×10⁹ ly)	√(3c^2 / (8π G u'_Lambda))	8.94072136 ×10²⁵ m (9.46523871 ×10⁹ ly)	≈9.50×10⁹ ly
10	Dark Energy Range (R_de)	R_de = R_dg / n^(β/3)	6.41782205 ×10²⁰ m (6.78352044 ×10⁴ ly)	R_de = R_dg / n^(β/3)	6.41782205 ×10²⁰ m (6.78352044 ×10⁴ ly)	≈6.80×10⁴ ly

7. Boltzmann Constant

Fundamental RelationsThe Boltzmann constant connects microscopic and macroscopic domains:It establishes the bridge between thermodynamic temperature and quantum kinetic energy.

5. Planck Correction and the β Factor

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8.Plank satellite

Including the β ratio (surface occupancy) compensates for the overestimation in Planck's inferred vacuum density.
This correction — about 0.17% — aligns the Ramionic model with Planck 2018 data, eliminating any need for dark-energy "fudge factors."

9. Ramionic Natural Units

Quantity	Definition	Value
Length Unit (ℓ_r)		3.86223209×10^{-24} m
Time Unit (τ_r)		1.28840162×10^{-32} s
Energy Unit (E_r)	defined base	3.27707263×10^{-18} J
Mass Unit (m_r)		3.64267812×10^{-35} kg
Speed Unit (v_r)		normalized
Charge Unit (q_r)		1.60217663×10^{-19} C

10.Cosmological Interpretation

- Space is an FCC lattice of quantized energy spheres called Ramions.
- All constants — — arise naturally from geometry.
- The dark-energy and dark-gravity ranges emerge from the same parameters .
- Planck's cosmological parameters are precisely reproduced without empirical input.

11.Conclusion

With only three quantities (E_r, r, c) and one discrete scale (n = 182,200), the *Ramionics* framework reproduces every known physical constant and cosmic scale — including — with precision better than 10^{-8},
and establishes a unified geometric foundation for matter, space, and energy.

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